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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/508,871	05/25/2005	Katsumi Okada	0149-045207	3736

28289 7590 10/16/2007  
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EXAMINER
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BLACKWELL, GWENDOLYN ANNETTE

ART UNIT	PAPER NUMBER
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1794

MAIL DATE	DELIVERY MODE
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10/16/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/508,871	OKADA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Gwendolyn Blackwell	1794	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 July 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) 14-16 and 25-37 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 17-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/05</u>   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of Group I, claims 1-13 and 17-24, in the reply filed on July 30, 2007 is acknowledged. The traversal is on the ground(s) that it would not create a burden to examine both inventions together. This argument has been considered, but not found persuasive. MPEP § 808.02 recites that for the purposes of the initial requirement of a restriction, a serious burden on the examiner may be prima facie shown if the examiner shows by appropriate explanation either separate classification, separate status in the art, or a different field of search as defined in MPEP § 808.02. Since the Examiner has shown a different classification for the two groups of claims, a burden for examining both groups has been shown.

2. The requirement is still deemed proper and is therefore made FINAL.

### ***Claim Objections***

3. Claims 6 and 11 are objected to because of the following informalities:

Claim 6 is objected to as the claim requires that the titanium oxide based photocatalyst contain an additional metal wherein the metal can be Ti. Is this in addition to the titanium oxide? It the photocatalyst to contain titanium oxide in addition to Ti? Clarification and appropriate correction is required.

Claim 11 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 1 indicates that the titanium oxide based photocatalyst is

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activated by irradiation with visible light. In order for that activation to occur, the photocatalyst would need to absorb visible light. As such, it is unclear how claim 11, which indicates that the titanium oxide has absorptivity for visible light, further limits the parent claim 1. Clarification and appropriate correction is required.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

*(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.*

*(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.*

5. Claims 1-2, 4, 6, 8-11, 12, and 18-21 are rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent no. 6,071,623, Sugawara et al.

*Regarding claims 1-2, 8-11, 13, and 18*

Sugawara et al disclose a hydrophilic article comprised of a substrate, a first layer, and a second (photocatalytic) layer. The photocatalytic layer is comprised of titania and at least one second metal oxide, (column 2, lines 20-30). The crystalline structure of the titania is preferably anatase, (column 2, lines 50-52). As the composition of the photocatalytic layer meets Applicant's claimed composition, including the crystalline structure, it would be expected that the coating would also be activated by visible light and have the desired claimed optical properties, absent an objective showing to the contrary, meeting the limitations of claims 1-2, 8-11, 13, and 18.

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*Regarding claims 4, 6, 17, and 19-24*

The second metal oxide is present in an amount ranging from 5-30 wt%, (column 5, lines 29-34), meeting the limitations of claim 4.

The second metal oxide can be based on a metal such as silicon, (column 4, lines 32-46), meeting the limitations of claim 6.

Claim 17 is defined as a product by process claim. The patentability of a product does not depend on its method of production. If the product in the product by process claim is the same as or obvious from a product of the prior art, the claims is unpatentable even though the prior art was made by a different process, meeting the limitations of claim 17. *MPEP 2113*.

Titania is present in the second layer in an amount ranging from 40-92 wt% in addition to a binder component, (column 5, lines 29-50), meeting the limitations of claim 19.

Example 1 demonstrates a titania containing dispersion using alcohol as a solvent, (column 6, lines 40-58), meeting the limitations of claims 20 and 22-24.

The diameter of the titania particles is less than 1 micron, which encompasses Applicant's claimed particle diameter, (column 4, lines 27-31), meeting the limitations of claim 21.

6. Claims 1-2, 6, 11-12, and 17-18 are rejected under 35 U.S.C. 102(b) as being anticipated by International Application Publication no. WO 01/71055, WO '055.

*Regarding claims 1-2, 6, 11, and 18*

WO '055 disclose a substrate with a photocatalytic film formed thereon wherein the film may also contain a small amount of niobium oxide, (abstract). As the composition of the photocatalytic layer meets Applicant's claimed composition, it would be expected that the

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claimed optical and/or physical limitations would also be met, absent an objective showing to the contrary, meeting the limitations of claims 1-2, 6, 11, and 18.

*Regarding claims 12 and 17*

The titanium oxide is in an oxygen defect state, (page 4), meeting the limitations of claim 12.

Claim 17 is defined as a product by process claim. The patentability of a product does not depend on its method of production. If the product in the product by process claim is the same as or obvious from a product of the prior art, the claims is unpatentable even though the prior art was made by a different process, meeting the limitations of claim 17. *MPEP 2113*

7. Claims 1-11, 13, and 17-24 are rejected under 35 U.S.C. 102(a) as being anticipated by United States Patent Application Publication no. 2002/0187338, Tanaka et al.

*Regarding claims 1, 6, and 11*

Tanaka et al disclose a photocatalyst exhibiting high activity when irradiated with light from a practical light source of low luminous energy (contains visible light), (page 5, sections 0102 and 0104). In addition to titanium oxide, an additional component selected from the group consisting of an alkaline earth metal, a transition metal, and Al can be added to the titanium oxide, (page 6, sections 0115-0116 and 0119), meeting the limitations of claims 1, 6, and 11.

*Regarding claims 2-5, 7-10, 13, and 17-24*

Polybasic acid salts (heteropoly/isopoly acid) may also be added to the photocatalyst, (page 6, sections 0016-0017), meeting the limitations of claims 2-3.

The additional component can be present in an amount of about 0.01 - about 50 mass%, (page 6, section 0120), meeting the limitations of claim 4.

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The starting point of the photocatalyst can be titanium chloride, (pages 7-8, section 0130). As the composition of the photocatalytic layer meets Applicant's claimed composition, it would be expected that the claimed optical and/or physical limitations would also be met, absent an objective showing to the contrary, meeting the limitations of claims 5 and 7-10.

The crystalline structure of the titanium oxide can be anatase, (page 6, section 0114), meeting the limitations of claim 13.

Claim 17 is defined as a product by process claim. The patentability of a product does not depend on its method of production. If the product in the product by process claim is the same as or obvious from a product of the prior art, the claims is unpatentable even though the prior art was made by a different process, meeting the limitations of claim 17. *MPEP 2113*

The photocatalytic layer can be formed on a substrate, (page 2, sections 0025-0028), meeting the limitations of claims 18.

A coating solution is comprised of the photocatalytic compound, a binder, and a solvent. The photocatalyst is present in an amount in that range of 0.01- about 50%, (pages 3-4, sections 0060-0069), meeting the limitations of claims 19-20 and 22-24.

Example 1 demonstrates that the particle size of the photocatalyst is 0.015 microns (15 nm), (pages 10-11, sections 0160-0164), meeting the limitations of claim 21.

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

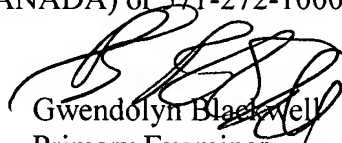
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USPNs 5,821,186 and 6,037,289 and US Application Publication no. 2002/0077251 are considered relevant as disclosing portions of Applicant's claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gwendolyn Blackwell whose telephone number is (571) 272-1533. The examiner can normally be reached on Monday - Thursday; 6:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on (571) 272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Gwendolyn Blackwell  
Primary Examiner  
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